

REMARKS

Claims 1-4, 6, 17-19, 40-42, 44-46, 48, 49, 51-58, and 60-62 were pending in the above-identified application when last examined. Claims 3, 4, 17-19, 40-42, 44-46, 48, and 49 were allowed. This response cancels claims 51-58 and 60 and amends claims 1 and 61. The claim amendments clarify the claim language and are not intended to limit the scope of the claims, unless the claim language is expressly quoted in the following remarks to distinguish over the art cited.

Claims 1, 2, 6, and 60-62 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Pat. No. 7,155,078 to Welch et al. (the '078 patent) in view of U.S. Pat. App. Pub. No. 2005/00225409 (the '409 App. Pub.). In view of the current amendment of claim 1, claim 60 is being canceled. Applicants respectfully traverse the rejection 1, 2, 6, 61, and 62.

Claim 1 distinguishes over the '078 patent and the '409 App. Pub. at least by reciting, "the first chip and the second chip are mounted on a substrate for transmission of the first optical signal between the first and second chips." The '078 patent and the '409 App. Pub. fail to disclose optical transmissions between chips on a substrate.

With regard to now canceled claim 60, the limitations of which are now being incorporated into claim 1, the Examiner indicated, "one of ordinary skill in the art would have found it obvious to mount both the first and second chips on the same substrate in order to allow alignment to be easily maintained." Applicants respectfully disagree. The '078 patent and the '409 App. Pub. are directed to telecommunications systems that communicate from afar. It would not have been obvious to mount first and second chips on a substrate "for transmission of the first optical signal between the first and second chips" as recited in claim 1 because one of ordinary skill in the art would have no motivation to employ telecommunication techniques locally for chips on the same substrate.

Applicants have invented an interconnect system that can use optical signaling to reduce the pin counts of integrated circuit. Packaging capable of connecting to a large number of pins is becoming a more critical problem as the size of chips decreases and the complexity of chips increases. In contrast, the '078 patent and the '409 App. Pub. describe receivers and transmitters for optical telecommunication. The '078 patent and the '409 App. Pub. are not directed to interconnect systems and fail to suggest Applicants' solution of using optical signaling for an interconnect system.

For the above reasons, claim 1 is patentable over the '078 patent and the '409 App. Pub.

Claims 2, 6, and 61 depend from claim 1 and are patentable over the '078 patent and the '409 App. Pub. for at least the same reasons that claim 1 is patentable over the '078 patent and the '409 App. Pub.

Independent claim 62 distinguishes over the combination of the '078 patent and the '409 App. Pub. at least by reciting, "a first circuit unit containing a first electronic circuit and a plurality of modulators, ... a second circuit unit containing a second electronic circuit and a plurality of detectors, ... wherein the first and second circuit units are integrated in a chip, and the first optical signal propagates from the first circuit unit to the second circuit unit within the chip." The combination of the '078 patent and the '409 App. Pub. fails to suggest an optical signal propagating within a chip between circuit units as recited in claim 62.

The rejection of claim 62 in the pending Office Action particularly identifies Fig. 10 of the '409 App. Pub. Fig. 10 shows a transceiver for a telecommunication system. The transceiver includes a transmitter section with modulator 14 and receiver section including a PIN detector 84. However, there is no suggestion of an optical signal propagating within the transceiver chip between the transmitter and receiver sections because the '409 App. Pub. teaches a PIN 84 that absorbs an input optical signal and use of a DFB laser 12 in generation of an output signal. Integrated optical transceivers conventionally receive an input optical signal from a remote system and transmit an output signal to the remote, and the '078 patent and the '409 App. Pub. provide no suggestion of a transmission from a transmitter section to a receiver section in the same chip.

As noted above, the '078 patent and the '409 App. Pub. are directed to telecommunication systems, which are systems communicating from afar. Applicants' invention as recited in claim 62 solves the problems associated with the operation of an integrated circuit chip. There is no suggestion provided by the '078 patent and the '409 App. Pub. that telecommunication techniques are suitable for such uses. Accordingly, claim 62 is patentable over the '078 patent and the '409 App. Pub.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection of claims 1, 2, 6, 61, and 62 under 35 U.S.C. § 103.

Claims 51-57 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Pat. App. Pub. No. 2002/0009277 (Noda). Claims 51-57 are canceled.

Claim 58 was rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Pat. App. Pub. No. 2002/0009277 (Noda) in view of U.S. Pat. App. Pub. No. 2004/0150873 (Pearsall). Claim 58 is canceled.

For the above reasons, Applicants respectfully request allowance of the application including claims 1-4, 6, 17-19, 40-42, 44-46, 48, 49, 61, and 62.

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